Choroidal metastasis of adenocystic carcinoma of the salivary gland

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SUMMARY A case of adenocystic carcinoma of the salivary gland arising in the hard palate metastatic to the choroid is presented. The histopathology of the tumour is discussed.

Metastatic tumour is the most common intraocular neoplasm.¹ The list of primary tumours which metastasise to the choroid is legion. It is surprising that there has never been a previous histopathological report of an adenocystic carcinoma of the salivary gland metastatic to choroid.

Case history

An 88-year-old widowed cabinet-maker presented to his ophthalmologist complaining of difficulty driving because of constant blurred vision of the right eye for one week. He had had transurethral resection of the prostate 12 years previously for benign prostatic hypertrophy. One year ago a lump in the hard palate was noted. An excisional biopsy was attempted, and the specimen revealed adenocystic carcinoma of the salivary gland, incompletely excised. A bone scan at that time had been negative. No further treatment was undertaken.

Eye examination showed best corrected visual acuity of 6/200 OD and 6/7 OS. The right eye had a heavy episcleral complex of vessels. The anterior segment OS was unremarkable. Applanation tensions were 22 mmHg OD and 19 mmHg OS. Funduscopy showed peripapillary atrophy OU. An inferior retinal detachment was seen OD, with the suggestion of an underlying mass.

The right eye was enucleated for presumed choroidal melanoma and sent to the David G Cogan Eye Pathology Laboratory at the Massachusetts Eye and Ear Infirmary for histopathological examination. A preoperative chest X-ray was reported as normal. A subsequent bone scan showed increased activity

only in the hard palate and at sites of degenerative joint disease. A liver-spleen scan showed questionable low activity in the left lobe and hilum of the liver without hepatomegaly. This was thought to be suspicious for metastasis.

DESCRIPTION OF SPECIMEN

The globe fixed in formalin measured 20×22×22 mm. External examination revealed no extrascleral tumour. A transillumination defect was noted inferotemporally. The anterior, posterior, and vitreous chambers were filled with a whitish material. A tumour 16 mm in its greatest diameter and 2 mm in elevation was noted beneath the retina, apparently contiguous with the choroid (Fig. 1a).

Microscopically the tumour showed nests of densely packed cells with large, lacy nuclei and scant cytoplasm (Fig. 1b). Hyaline bands surrounded the nests. Many nuclei showed prominent nucleoli, and from four to 12 mitotic figures per high-power field were visible. The tumour appeared poorly differentiated. Superficial invasion of the scleral coat was seen. Alcian blue stains revealed the presence of intercellular acid mucopolysaccharide. The retina was detached and appeared necrotic directly underlying the tumour. Subretinal fluid was evident. The anterior, posterior, and vitreous chambers contained amorphous eosinophilic material. The remaining intraocular structures were unremarkable for the globe of an 88-year-old patient.

The tissue from the hard-palate tumour was obtained and reviewed. It was found to contain similar nests of cells with lacy nuclei and scant cytoplasm surrounded by hyaline bands (Figs. 2a and 2b). Areas of well differentiated tumour and areas of more poorly differentiated tumour were identified, the latter areas resembling the intraocular tumour.

Fig. 1a Vertical section through the globe demonstrating metastatic adenocystic carcinoma of the salivary gland in the choroid. (H and E, $\times 2.8$).

Discussion

Metastatic tumours are the commonest intraocular neoplasm, a fact previously obscured by the typically late development of ocular metastasis in the moribund patient with carcinoma and the infrequency of examination of ocular tissue in routine necropsy of cancer patients.¹ The incidence of ocular metastasis in patients with known malignancies has been variably reported by several authors. Godtfredsen reported ocular metastasis in six cases out of 8712 patients with known carcinoma.²

Albert, Rubenstein, and Scheie found 10 cases of clinically debatable metastasis to the eye and orbit in 213 patients with known non-ocular metastatic disease. Five of these cases had metastasis to the choroid.³ Bloch and Gartner reported 28 histopathologically demonstrated foci of metastasis to the eye and orbit from an examination of 230 patients who had died of systemic cancer. The incidence of intraocular metastasis in these cases was 11%.⁴

By far the most frequent primary cancers to metastasise to the eye are from the breast and lung, representing 39% and 17% of metastases in the Massachusetts Eye and Ear Infirmary series 1896–1981.¹ Other primary neoplasms in this series responsible for ocular metastasis include neuroblastoma, skin melanoma, kidney, liver, testis and urogenital ridge, pancreas, prostate, intestine, stomach, aesthesioneuroblastoma, myxoma, carcinoid, and hypophyseal tumour.

Fig. 1b Nests of poorly differentiated cells surrounded by hyaline bands underlying the retina. (H and E, $\times 13$).

Fig. 2a *Pattern of nests of cells surrounded by hyaline bands in hard palate tumour resembling nests in choroidal tumour. (H and E, $\times 144$).*

Fig. 2b *High-power view of an area of relatively well differentiated palate tumour demonstrating lacy nuclei with prominent nucleoli and frequent mitoses. (H and E, $\times 576$).*

In 227 cases of carcinoma metastatic to the eyes and orbit reviewed by Ferry and Font the presenting complaint was decreased vision in 79.9%, pain in 22.4%, and retinal detachment in 11.4%.⁵

Many lesions may mimic melanoma of the choroid. In the Wills series of 770 patients referred because of ophthalmoscopically suspected melanoma 52% were diagnosed as having various simulating lesions.⁶

Histological examination of ocular metastatic adenocarcinoma of the salivary gland has to our knowledge not been previously reported. Sautter described a case of presumed bilateral metastasis to the choroid in patients with adenocarcinoma of a minor salivary gland invading the mandible.⁷ The eyes were not examined post mortem. Jenrette and Fitzgerald described a case of presumed choroidal metastasis two months after complete response to systemic chemotherapy for adenocystic carcinoma of the salivary gland with disappearance of pulmonary metastasis.⁸ The choroidal lesions completely disappeared with local radiation therapy; consequently no histopathological examination was available.

While enucleation may be curative for primary malignant melanoma arising in the choroid, palliative radiation therapy is generally the preferred course for metastatic disease of the choroid. In only one published case, that of a carcinoid tumour metastatic to the eye 30 months after excision of the primary, has enucleation of a metastatic cancer been curative.⁹ Every effort should therefore be made to diagnose metastasis prior to definitive enucleation.

Clues in this critical differential diagnosis may be gained by a careful clinical history with reference to general systemic symptoms and past medical history. A thorough general physical examination should be undertaken. A search for metastases including chest X-ray, liver function tests, liver-spleen scan, and bone scan, would not only expose the most likely sites for metastatic choroidal melanoma, but also disclose the most likely sites for a primary cancer metastatic to the choroid.

The characteristics of the growth pattern of a melanoma may serve to differentiate it from metastases which may be flatter, multifocal, or bilateral. Fluorescein angiography may provide helpful information. Ultrasonography of the eye may be useful. B-mode scanning may be of use to define characteristic tumour morphology and choroidal excavation; a-mode scanning may show characteristic acoustic patterns of melanoma or of metastasis.

This case describes the (previously unreported) histopathological demonstration of a choroidal metastasis from a primary adenocystic carcinoma of the salivary gland arising in the hard palate and stresses the need to formulate a preoperative differential diagnosis between primary melanoma of the choroid and metastatic choroidal disease.

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